

# Correspondence

*The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases, accompany letters intended for publication in these columns.*

## AGE AND AVIATION

**T**OO old at forty-five! When I applied at the age of 70 for a "B" licence the Air Ministry replied that being over 45 I could not have one. Yet, in the air, age is more reliable than male youth. Female youth is different. Patience is an attribute of femininity as it is of age, and patience implies an equable mind throughout any task the individual undertakes. A very learned *littérateur* has shown that Charlemagne's great paladins, Roland who fought to the death at Roncesvalles and others, were all at their zenith when over the three score and ten. The Germans credit to their Lillienthal the first glider flight and the design to which the American Wrights hitched an I.C. engine, so originating twentieth century aviation. Yet, in 1806, a certain General Résnier flew in a glider for a distance of 300 metres, and, mark, he was then 76. In the year of Jena there was no I.C. engine to give Napoleon world dominion.

A. J. RICHARDSON.

North Walsham, Norfolk.

## GROUND SIGNS

**W**ITH reference to the interesting letter in last week's issue under the above heading from the assistant engineer of the Leominster Gas and Coke Company, many gasworks in various parts of the country are now grouped under the control of holding companies, who would, I have no doubt, arrange for a number of holders to be painted with ground signs if they were approached. In the event of war, it would be an easy matter to obliterate the lettering.

This Company has gasholders with the names of the towns on the crown at Hull (Yorks), Holywell, Flint (N. Wales), Baldock (Herts), Crowbridge, Bradford, Warminster (Wilts), and it is intended to do others.

It may not be generally known that the spiral-guided gasholder—the most popular type at the present time—rises and falls with a cork-screw motion and is useless as a direction indicator, but can be used for the name of the town alone.

We have found the cost of painting the name on a medium-sized gasholder to be about £4 10s. D. B. PARKINSON, London, S.W.1. The British Gas Light Company, Ltd.

## THE STALLING OF YAWED AND TAPERED WINGS

**F**ROM Mr. Gray's comments in his article in your issue of September 3 it appears that he has difficulty in following some of the arguments in my letter of August 27. It should have been evident that I accepted Mr. Gray's experimental evidence that a transverse flow exists and that the stalling of a section towards which it is directed is, in fact, accelerated. My point was that I did not consider that Mr. Gray had produced a satisfactory explanation of the above facts which I believe to be difficult of explanation, and I am far from claiming my own explanation to be a complete one. I hope that the following modified form of my original argument may be less open to misunderstanding.

Imagine, to be definite, a finite rectangular aerofoil at rest at zero yaw in a uniform stream. Now suppose that the aerofoil is suddenly given a uniform velocity parallel to its span; then initially the air flow will be entirely undisturbed (except close to the ends) and so there will be initially an additional transverse velocity *relative to the aerofoil* which will be the same everywhere, being equal to the transverse velocity given to the aerofoil. If this transverse velocity is small in comparison to the velocity of the original stream the resulting change in direction relative to the aerofoil will be everywhere small, except in regions where the original air velocity was small, such as the air close to the upper surface of the trailing edge. Immediately after the impulsive start the flow will begin to settle down to a new state of steady motion in which the transverse component velocity relative to the aerofoil will be everywhere reduced by viscosity below its value at a distance, but may be still great enough to correspond to a considerable inclination towards the downstream wing tip at points just above the trailing edge. At points near the leading edge the thickness of slow moving air capable of being deflected will be much smaller but the effect will be in the same direction as near the trailing edge.

Now consider the effect on the "pitot boundary," i.e., the boundary at which the total pressure head of the air becomes

equal to that of the undisturbed stream. The transverse velocity component will tend to remove some of the slow moving air from the region inside the pitot boundary near the upstream wing tip; this will bring the boundary closer to the surface of the aerofoil and retard the stall. The opposite effect will be produced near the downstream wing tip.

It is desirable to emphasise that the above transverse velocities will be additional to those associated with the ordinary Prandtl trailing vortices. In this connection Mr. Gray suggests that I imply that the ordinary Prandtl theory of a monoplane wing only holds good if the trailing edge is straight. My actual statement was that the aerofoil with straight trailing edge "would be expected to behave more nearly in accordance with the ordinary Prandtl theory of a monoplane wing, on the assumption that all sections have the same maximum lift coefficient." Actually the Prandtl theory as such applies only below the stall. It cannot therefore determine whether wing tip or root stall first except by use of such an additional assumption as that all sections stall at the same local incidence (same CL). My suggestion, in common with what I understand to be Mr. Gray's theory, is that it is only with a straight trailing edge that all sections stall at the same local incidence, and we are both trying to account for the experimental result that, with, say, a swept back trailing edge, the centre stalls at a higher local incidence than the tip, the distribution of incidence and lift being as determined by the Prandtl theory.

C. N. H. LOCK.

Hampton Hill, Middlesex.

## POP RIVETING

**O**N his return from a somewhat protracted absence the writer has read a letter appearing in your issue of September 3, in which Mr. S. T. Johnson, of Aviation Developments, Ltd., contradicts our statement that pop rivets can be set at the rate of 1,200 per hour.

We are not, ourselves, a firm which inserts rivets, but a firm that makes rivets. We have referred this point on riveting to aircraft firms who use our rivets and mandrels and have been reassured that the speed given in our letter appearing in your issue of August 27 is, in fact, an under-statement of the speeds being attained by boys in their employment. We have permission to communicate the name of one firm to Mr. Johnson if he wishes to obtain direct proof.

With regard to Mr. Johnson's statement that pop riveting is more costly than Chobert riveting, we have obtained figures from some of the firms using our rivets and find that the cost of pop riveting steel structures is in many cases under ten shillings per thousand rivets. This sum covers:—

- (1) The supply of rivets and mandrels.
- (2) The threading of rivets on mandrels.
- (3) The inserting of mandrel in tool.
- (4) The inserting and fixing of rivets.
- (5) An allowance for the tool cost.

Will Mr. Johnson be equally frank and publish the corresponding costs of riveting by the Chobert process?

These points of speed and cost are the only ones on which Mr. Johnson challenges the statements made in our letter in your issue of August 27, and we would point out that this letter dealt mainly with the quality and reliability of pop riveting compared with other riveting systems.

GEO. TUCKER EYELET CO., LTD.,

Birmingham.

R. Ruddock, Director.

## Returning to the Fold

**T**WO of aviation's old-timers are about to return after an absence of some years. Older *Flight* readers will probably remember the Garuda propeller of about 1913. Connected with that, and with the Albatros Company, was Mr. Jablonski, who came over with Robert Thelen in an Albatros in 1914 and gave demonstrations at Farnborough and elsewhere. Mr. Jablonski has now secured the British rights in the well-known German Heine propeller, and a company is being formed in this country to manufacture it, probably at Ipswich. Associated with Mr. Jablonski is another old-timer, Harry Delacombe, whose work in the earliest days of flying is still well remembered and who afterwards served valuably in the R.N.A.S.